

CLAIMS

What is claimed is:

1. An isolated nucleic acid comprising:
a nucleotide sequence encoding the 435 amino acid polypeptide of SEQ ID
5 NO: 17,
wherein X²⁸⁷ is Asp, Glu, or Ser;
wherein X²⁹¹ is Asp, Glu, or Thr; and
wherein X²⁹³ is Asp, Glu, or Ser.
2. The nucleic acid of Claim 1, wherein said isolated nucleic acid encodes a
10 polypeptide selected from the group consisting of:
SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID
NO: 10, and SEQ ID NO: 23.
3. The nucleic acid of Claim 1, wherein said nucleic comprises a nucleic acid
selected from the group consisting of:
15 SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID
NO: 9, and SEQ ID NO: 22.
4. The nucleic acid of Claim 3, wherein said isolated nucleic acid consists of
a nucleotide acid selected from the group consisting of:
SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID
20 NO: 9, and SEQ ID NO: 22.
5. An isolated polypeptide comprising:
the 435 amino acid polypeptide of SEQ ID NO: 17:
wherein X²⁸⁷ is Asp, Glu, or Ser;
wherein X²⁹¹ is Asp, Glu, or Thr; and

wherein X²⁹³ is Asp, Glu, or Ser.

6. The polypeptide of Claim 5, wherein said polypeptide comprises a polypeptide selected from the group consisting of:
SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, and SEQ ID NO: 23.
7. The polypeptide of Claim 6, wherein said polypeptide consists of a polypeptide selected from the group consisting of:
SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, and SEQ ID NO: 23.
- 10 8. An expression cassette comprising:
a promoter operably linked to a nucleic acid encoding the 435 amino acid polypeptide of SEQ ID NO: 17,
wherein X²⁸⁷ is Asp, Glu, or Ser;
wherein X²⁹¹ is Asp, Glu, or Thr; and
15 wherein X²⁹³ is Asp, Glu, or Ser.
9. The cassette of Claim 8, wherein said nucleic acid encodes a polypeptide selected from the group consisting of:
SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, and SEQ ID NO: 23.
- 20 10. The cassette of Claim 8, wherein said nucleic comprises a nucleic acid selected from the group consisting of:
SEQ ID NO: 1, SEQ ID NO: 3, SEQ ID NO: 5, SEQ ID NO: 7, SEQ ID NO: 9, and SEQ ID NO: 22.
11. A method for assaying protein kinase activity comprising:

incubating an isolated polypeptide comprising:
the 435 amino acid polypeptide of SEQ ID NO: 17,
wherein X²⁸⁷ is Asp, Glu, or Ser;
wherein X²⁹¹ is Asp, Glu, or Thr; and
5 wherein X²⁹³ is Asp, Glu, or Ser;

in the presence of ATP and a MKK7γ1 substrate; and
determining whether said MKK7γ1 substrate is phosphorylated.

12. The method of Claim 11, wherein said ATP is γ-³²P-ATP.
13. The method of Claim 12, wherein said isolated polypeptide comprises SEQ ID NO: 2, SEQ ID NO: 4, SEQ ID NO: 6, SEQ ID NO: 8, SEQ ID NO: 10, or SEQ ID NO: 23.
14. The method of Claim 11, wherein said method further comprises incubating said isolated polypeptide in the presence of a candidate therapeutic agent having a molecular weight of between 100 Da and 15 1000 Da.
15. The method of Claim 11, wherein said MKK7γ1 substrate is JNK1.